

wetted by water. This no doubt arises, partly at least, from the condensation of *gases* on the surface, which Quincke has shown will produce this effect to a remarkable extent under certain conditions described by him. To this, also, Barrett and Stoney have referred certain modifications of Leidenfrost's phenomena; and the floating shells, &c., of Hennessey are due to the same general cause. But a very minute trace of oil on a physically clean surface produces the familiar greasy surface. Why is this? Oil is not insoluble in water, and when the quantity of water used is sufficient to dissolve the quantity of oil placed on the glass, it ought to wash off. Every one knows, however, how difficult it is to wash oil off glass. *Is this then due to a diminution in the solubility of the oil in the water owing to its CONDENSATION on the glass surface?* I believe it to be very probable that this is the case, and think that the experimental proof would be possible by placing estimated quantities of oil on a physically clean glass surface, and subsequently washing in quantities of water, such as under ordinary circumstances would readily suffice to dissolve it. By dissolving the oil in a volatile medium, its quantity might be readily estimated. No doubt other liquids of somewhat greater and better known solubility might be advantageously substituted for the oil, and perhaps, as Dr. Japp has suggested to me, by employing a coloured liquid the result might be rendered evident to the eye.

My inability to complete these experiments at the present time, and the great interest attaching to a determination as to whether the condensation experienced by the liquid-film alters the physical or chemical properties of the liquid must be the excuse for the publication of incomplete results, which I much hope may be taken up by others.

J. W. CLARK

#### THE STOCKHOLM ETHNOGRAPHICAL EXHIBITION<sup>1</sup>

DR. STOLPE was asked to arrange and describe the Ethnographical Exhibition of Stockholm in the year 1878. This exhibition was brought together from all, or at least nearly all, Swedish public and private collections; no less than 217 exhibitors with about 10,000 objects participated, the King himself opened the galleries, and general interest was raised by an ethnographical exhibition as indeed no other country has realised till now. We took occasion to visit the exhibition, and were astonished to see so rich a material, as well as a thoroughly scientific arrangement.

Both works named below are a result of the meritorious undertaking. The second was partly a guide through some parts of the exhibition, especially China and Japan, with a general introduction, and many valuable and interesting special remarks, partly, in its second volume, a determination of all, about 6200 numbers of the exhibition, arranged after the exhibitors. The first-named work illustrates in geographical order the more important objects of the exhibition, partly in groups, but chiefly in single representations. There may be represented in all about 1500 objects, and we hear that a fourth supplementary volume is in the press.

The first volume of this album contains, on 84 plates, Australia, Oceania, Malaysia, Madagascar, Malayo-Chinese, and Tibet; the second, on 116 plates, China, Japan, Samoyedes, and Turks; the third, on 78 plates, America, Africa, Circassia, Persia, and India. Japan and China, as well as Oceania, are relatively best represented; among the last-named division figures the fine collection from the Savage Islands, which the expedition of the *Eugénie* brought home in the year 1853.

<sup>1</sup> H. Stolpe, "Exposition ethnographique de Stockholm, 1878-1879." Photographies par L. F. Lindberg. 3 vols. 4to. 36 pp. 278 plates. (Stockholm, 1882).—"Den allmänna etnografiska utställingen, 1878-1879" (The General Ethnographical Exhibition). 2 vols. 8vo. 80 pp. 1878-1879, and viii. 112 pp. 1880.

This photographic album must be regarded as the best existing ethnographical atlas; it gives, notwithstanding the inequality in the representation of the single countries, a good idea of a high-class ethnographical museum. The editor has had a full appreciation of the problem which was to be solved, and no ethnologist who works scientifically can do well without this album. It was therefore right that the International Geographical Congress of Venice in the year 1881 should bestow a prize on this beautiful work. Copies of the album are, we believe, only printed to order, and may be obtained direct from Herr Lindberg, R. Archæological Museum, Stockholm.

A. B. MEYER

#### BARON MIKLOUHO-MACLAY

LETTERS have been received from Baron N. de Miklouho-Maclay from the Suez Canal, the distinguished traveller being now on his way back to Australia. During his prolonged and arduous experience of eleven years' life amongst Melanesian and other savages of the Pacific his health has, we are sorry to say, suffered very seriously, and he returns to Sydney mainly on this account, since he finds that the climate of New South Wales suits him best. He intends to call at Batavia on the way out, where he left a part of his collections in 1878, in order to convey these to Sydney, where the main bulk of the gatherings of his many journeys is already stored. The Emperor of Russia, with enlightened liberality, has promised to defray the cost of the publication of the scientific account of Baron de Maclay's results, and the collections have been brought together at Sydney in order that they may be available for the preparation of the work for the press there.

Baron de Maclay hopes to be able to get ready the whole of his numerous diaries, notes, and papers for publication in about two years' time. The complete work to be issued by him will, if his present plan be carried out, consist of an anthropological and ethnographical section, a section treating of comparative anatomy, and a general narrative of his travels, together with appendices containing meteorological observations and information on physical geography.

The work will be published first in Russian, but translations in other languages will probably soon follow.

He intends to do a good deal of the anatomical work needed to complete his researches on animals collected by him in Australia and New Guinea at the Zoological Station at Watson's Bay, of which he is the founder. This Zoological Laboratory at the very first received most important support from the Linnean Society of New South Wales, and by the influence of this Society a grant of land was obtained from the New South Wales Government for the erection of the building. Scientific men in other colonies, and notably in Victoria, recognising the great importance of the establishment to the progress of biological research, have come forward nobly to support the enterprise, and the Australian Biological Association has been formed, a Society including men of science of all the Australian colonies and some distinguished European naturalists, the object being to support biological stations in Australia. It is very gratifying to find so enlightened a sympathy with scientific progress developed, and that the different colonies are able to work together in so excellent a cause. We hope to refer shortly again to the constitution and aims of the Australian Biological Association.

#### NOTES

WE can only for the present express the deep regret with which we learn of the death, on the 9th inst., of Prof. H. J. S. Smith, of the Savilian Chair of Geometry at Oxford, at the

comparatively early age of fifty-six years. We hope next week to refer to his career and work in detail.

THE death is announced at Basle of Prof. Peter Merian, the Nestor of Swiss geologists. He was born on December 20, 1795. His first important work, on the Jura of the Canton of Basle, was published in 1821, followed a few years later by a geological account of the Southern Schwarzwald. In 1821 he was appointed Professor of Physics and Chemistry in his native University, and at a later period he accepted the Chair of Mineralogy and Geology, which he held for half a century. He was more than once chosen rector of his University, and throughout his life not only continued his geological activity, but took an active interest in scientific work of all kinds as well as in public affairs.

We learn that Dr. Oscar Dickson arrived in Christiana on the 9th inst. to confer with King Oscar, who is sojourning there, as to an Arctic expedition to be despatched this year, under the command of Baron Nordenskjöld, to North Greenland.

M. JANSSEN, as leader of the French Eclipse Expedition, will embark on March 6 for Panama. He will cross the isthmus by rail, and the *Éclairneur* will be ready at Colon to take him to Sable Island, near Caroline Island in the Marquesas group.

MR. DEANS COWAN, well known for his explorations in Madagascar (see *Proc. R. Geogr. Soc.*, vol. iv. p. 521), has now fully settled to return there, in order to explore the southern part of the island. Of this district little is known, and it may be fully expected that Mr. Cowan will get valuable additions to our knowledge of the natural history of the country. Mr. Cowan calculates that his journey will occupy about two years. His plan is to begin at Ambahy on the south-east coast, and to proceed inland to the most southern point reached when he made his survey of the Bara-land, working southward amongst the Tausay and Taudroy people, thence westward towards the district of the Mahafaly tribe, and on to the River Onylahy. This will occupy one year. From the Onylahy the route will be nearly north through western Bara-land and the Sakalava country, ending at Mojanga. As these journeys will be amongst the aborigines, and even in different geological formations to that from which nearly all our Madagascar specimens are obtained, Mr. Cowan expects that the results will be of a most valuable character, and help to a solution of many interesting questions in regard to Madagascar.

COLONEL ÉMILE GAUTIER has been appointed Director of the Observatory of Geneva, in succession to the late Prof. E. Plantamour, who had filled the position from 1839.

ON Tuesday, February 6, a large number of scientific men and social and political notabilities assembled at the Northern Station, Paris, to witness the transmission of energy by an iron wire used like an ordinary telegraphic line, and extending to Sevran, near Le Bourget, and returning to the station, thus completing a distance of 20 kilometres. The primary engine was moved by a force of about 5 horse-power, and the force of the secondary was said to be  $2\frac{1}{2}$ . No precise measure was taken. The experiment was in continuation of the much spoken of Munich transmission of energy from Mierbach, according to the Marcel-Deprez system. It is not believed that this new experiment will put an end to the controversy. Many papers have reported enthusiastically on the proceedings, and letters have been written by electricians claiming to have executed more successful trials. It is stated that new experiments on the Marcel-Deprez system of transmission of energy will take place under the superintendence of M. Tresca, with the same machines as on February 6. The *Lumière Électrique* states that the percentage of force is about  $37\frac{1}{2}$  per cent., and that the dynamometer for

measuring the motive power of the primary machine was not in order at the time of the first experiment.

PROF. FLOWER will commence, at the Royal College of Surgeons, on Monday, the 26th inst., a course of nine lectures upon the Anatomy of the Horse and its allies. In the first three lectures the general position of the horse in the animal kingdom, and its relations to other existing and extinct species will be treated of; the remainder of the course being devoted to a more detailed account of the osseous, dental, muscular, nervous, and other systems, as compared with those of the generalised Mammalian type, the allied forms of Ungulates, and Man. The lectures will be given on Mondays, Wednesdays, and Fridays, and are free to all who take an interest in the subject.

It seems that the season of 1882 has, on account of the state of the ice in the Arctic seas, undoubtedly been one of the most adverse on record. Thus while the Norwegian walrus and white fish hunters were unable to get to the north of Spitzbergen and the Swedish Meteorological Expedition to Mossel Bay, no vessel succeeded in reaching the Siberian rivers. It appears from information just to hand that the summer along the coast of Siberia has been unusually cold, while incessant north-east winds have accumulated drift-ice on the shores to such an extent that the estuaries of the Yenissei and the Obi were not once navigable in the season. Thus the small steamer *Dallmann*, of Yenisseisk, belonging to Baron Knop, was quite unable to get from the Yenissei into the Obi, and all she accomplished during the year was to transfer a few thousand poods of grain from Mr. Sibirakoff's dépôt, where it had been lying for some years, to Baron Knop's, to be eventually forwarded to Europe. When it is remembered that this was the state of the ice in the eastern and southern parts of the Arctic seas, and we remember the reports of Mr. Leigh Smith and Sir Henry Gore Booth of open water north and east of Novaya Zembyla, it becomes apparent that some other part of the Polar basin must have been very free from ice during the summer. It seems to be the opinion of several authorities, as for instance Baron Nordenskjöld, that any vessel which had attempted to penetrate by way of Behring Strait would, no doubt, have demonstrated the practicability of navigating the Siberian seas every summer from one end or the other. This year fresh attempts will be made by Mr. Sibirakoff, Baron Knop, and Dr. Oscar Dickson to open up a trade route with Siberia from Europe; those however acquainted with the Arctic seasons would not be surprised to see the ice in the summer of 1883 as adverse to Arctic voyaging as it was in 1882.

THE first news has been received at St. Petersburg from the Russian Lena Expedition. Lieut. Harder, who was searching for the remains of the victims of the *Jeannette* disaster, met Dr. Bunge and Jürgens on October 3. He found the members of the Lena Expedition in excellent health, and already comfortably settled in their winter quarters.

M. WOLF, chief of the Physical Department in the Paris Observatory, delivered last Saturday evening a lecture at the Sorbonne, on the Methods employed in Astronomical Physics, before a very large and enthusiastic audience. M. Wolf insisted upon the three methods employed by astronomers, viz. ocular inspection with telescopes, spectroscopic analysis, and photography. He dwelt upon the difficulties of vision with instruments possessed of a great magnifying power, and he tried to oppose the popular delusion that any description of celestial phenomena could be photographed with advantage. He explained that this method should be almost exclusively confined to the sun and moon. The lecture was illustrated by many experiments and projections.

AN important advance is in course of realisation in the use of telegraphy for French newspapers. The *Reforme* has hired a



direct cable from London to Paris. The instruments are in the London and in the Paris office of the paper, so that the transmission is instantaneous. According to circumstances, the *Reforme* telegraphists use the Calais, Boulogne, or Dieppe cables. None of these gives a sensible retardation through crossing the sea; but it is remarked that, contrary to expectation, the Dieppe cable is the best of the three. The transmission is made with an ordinary Hughes apparatus.

THE following are the subjects of the lectures to be given at the Royal Institution by Prof. Robert S. Ball, the Royal Astronomer of Ireland, on the Supreme Discoveries in Astronomy:—"The Scale on which the Universe is Built," "The Sun no more than a Star, the Stars no less than Suns," "The Law of Gravitation," and "The Astronomical Significance of Heat." The first lecture will be given on Tuesday, February 20.

PROF. JOHNSTRUP, Rector of the University of Copenhagen, in a paper on "The Glacial Phenomena manifested in Denmark," has shown that the *Cyprina*-mud deposits overlying the gravel in many parts of the Danish territories afford evidence that an interval of lesser cold must have followed the great glacial period. He moreover regards the presence of the shells of *Cyprina islandia*, and other boreal forms of similar habit, as a proof that the climate in this intermediate period must have been similar to that of the North Sea and the Cattegat in the present day. His views of the connection between these *Cyprina* deposits and the varied manifestations of glacial action are based on the hypothesis that the ice, which advanced from the interior of Scandinavia and covered Denmark and Northern Germany, must have been driven back, and that on its disappearance, the *Cyprina* mud was deposited in horizontal layers. On the recurrence of another glacial period these deposits were crushed, dislocated, and often thrust into a vertical position by drifting ice-fields, which had ploughed and broken up the sea-bottom in their advance. This view is in opposition to the opinion more generally held by geologists, that Denmark was twice completely buried under one connected ice-pall, which owed its origin to the continental ice of the Scandinavian peninsula. The direction of the striations and scouring lines in the island of Bornholm, and in some parts of Iceland, which are now being carefully investigated, are, however, admitted to be favourable to the views advanced by Prof. Johnstrup.

MR. GEORGE STALLARD, B.A., of Keble College, Oxford, at present Science Master of St. Paul's School, has been appointed Science Master at Rugby, in place of the Rev. C. M. Hutchinson.

THE Council of the Meteorological Society have determined upon holding at the Institution of Civil Engineers, 25, Great George Street, S.W., on the evening of March 21 next, an Exhibition of Meteorological Instruments which have been designed for, or used by, travellers and explorers. The Exhibition Committee invite co-operation, as they are anxious to obtain as large a collection as possible of such instruments. The Committee will also be glad to show any new meteorological apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest.

WITH reference to the recent explosion of a zinc-plate oxygen gasometer, described by Herr Pfaundler in *Wiedemann's Annalen*, Dr. Loewe states (*Wied. Ann.* No. 1) that to protect oxygen or atmospheric air from admixture of carbonic acid or acid vapour from the air of the laboratory, he has for many years placed them over lime-water. Some 20 to 30 gr. freshly slacked lime, in a powdered state, is placed in a strong linen bag, which is tied with cord just above the contents, and hung near the outflow

tube of the water vessel of the gasometer. This ensures that all carbonic acid and acid vapours which the water of the gasometer may in time absorb from the air, are neutralised by lime-hydrate, and rendered innocuous. There is the further advantage, for elementary analysis, that the potash or soda lye, which is preferred for washing the gases, remains long quite caustic, and thus serves—as it ought to do—less for purification of the gas than as an indicator of the gas current. After long use the linen bag of lime-powder is renewed.

THE February part of Hartleben's *Geographische Rundschauen* contains an interesting account of Potanin's journey through Mongolia in the years 1876-77; also some well-written articles on the Samoa Islands, on Eastern Africa, and the European census of 1881, together with a memoir of Count Hans Wilczek.

SOME time ago we announced the commencement of the publication of an "Elektro-technische Bibliothek," by Hartleben, of Vienna. The second volume of this series has just appeared, entitled "Die elektrische Kraftübertragung und ihre Anwendung in der Praxis," by Eduard Japing.

WE are requested by the Council of the Society of Telegraph Engineers and of Electricians to state that an International Electrical Exhibition will be held in Vienna under the patronage of the Austro-Hungarian Government, in the months of August, September, and October next. At the request of the Austrian Minister of Commerce, and of the Managing Committee of the Exhibition, the Council of the Society have appointed a Committee for the purpose of receiving applications for space from intending British exhibitors, and for promoting generally the formation of a British section. Application should be made as early as possible, and should be addressed to the Secretary of the Society of Telegraph Engineers and of Electricians, 4, The Sanctuary, Westminster, S.W.

THE Municipal Council of Paris is proposing to the administration to organise a medical service for the inspection of the eyes, ears, and teeth of the pupils of the public schools, in order to see how to cure constitutional or chronic diseases by which they may be affected.

A LOCAL committee has been established in Annonay for the erection of a statue to commemorate the invention of the *Montgolfier* balloon.

UPWARDS of one hundred Palæolithic implements from the collection of Mr. Worthington G. Smith have been transferred to the collection of Mr. John Evans at Nash Mills, Hemel Hempstead.

A "SECOND London edition" has been issued by Macmillan and Co. of Prof. Newcomb's "Popular Astronomy." The principal additions relate to Dr. Draper's investigation on the existence of oxygen in the sun; Janssen's conclusions from his solar photographs; Prof. Langley's investigation on the solar spectrum on Mount Whitney, California; the satellites of Mars; the supposed intra-Mercurial planet; preliminary results from the late (1874) transit of Venus, and other recent methods of determining the solar parallax; the transit of Venus on Dec. 6, 1882; the great telescopes completed within the last four years; and recent developments in cometary astronomy. The preface is dated Washington, July, 1882.

A DEPOSIT of remains of mammals from the diluvial period has been laid bare by the waves of the Wolga on the bank of that river between Zarizyn and Sarepta. M. Al. Knobloch, of Sarepta, has made a valuable collection of the bones found, which belonged to *Elephas primigenius*, *Bos priscus*, *Elasmotherium*, *Camelus Knoblochi*, besides several antelopes, stags, &c.

ON the evening of January 24 an aurora was observed at Geestmünde, which was remarkable both for its duration as well as for the intensity of its light. The sky was quite clear and the moon shining brightly, when about 7.30 p.m. a semi-circle of light appeared in the north-east. Soon afterwards long rays shot out from this across the sky, forming an immense fan of light; the middle one of these rays crossed the sky right down to the south-west, and remained visible in the same brightness for two hours. The size and brightness of the other rays changed constantly. The light was perfectly white.

A VIOLENT earthquake is reported from Freiburg-im-Breisgau January 24, at 5.30 a.m., accompanied by loud subterranean noise. At the same time two strong shocks were felt at Bischoffingen. On the same date, at 7.58 a.m., an earthquake was observed in Herzegowina. It lasted for four seconds, and its direction was from north to south.

DURING the coming summer a Fine Art and Industrial Exhibition will be held at Huddersfield in connection with the opening of the New Technical School.

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented respectively by Mr. T. W. Davidson and Miss M. Sutton; two Common Marmosets (*Hapale jacchus*) from Brazil, presented by Mr. A. Pariss; an Oak Dormouse (*Myoxus dryas*) from Russia, presented by M. A. Wrzesniowski; a Common Marmoset (*Hapale jacchus*) from Brazil, presented by Mrs. Lynch; two Common Gulls (*Larus canus*), British, presented by Mr. W. K. Stanley; two Herring Gulls (*Larus argentatus*), British, presented by Capt. C. R. Suckley; a Brant Goose (*Bernicla brenta*), European, presented by Mr. J. C. Robinson; a Black Lemur (*Lemur macaco*) from Madagascar, four Impeyan Pheasants (*Lophophorus impeyanus* ♂ & ♀ & ♀) from the Himalayas, a Black-necked Swan (*Cygnus nigricollis*) from Antarctic America, deposited; two Philantomba Antelopes (*Cephalophus maxwelli*), a Crowned Hawk Eagle (*Spizaetus coronatus*) from West Africa, four Snow Buntings (*Fleetrophanes nivalis*), two Brant Geese (*Bernicla brenta*), European, a Red-throated Diver (*Colymbus septentrionalis*), British, purchased; a Schomburgk's Deer (*Cervus schomburgki*), from Siam, received in exchange; two Hybrid Peccaries (between *Dicotyles labiatus* ♂ and *D. tajacu* ♀), five Ring-hals Snakes (*Sepeidon hamachates*), born in the Gardens.

### OUR ASTRONOMICAL COLUMN

THE COMET OF 1771.—The comet discovered by Messier at Paris on April 1, 1771, and last observed by St. Jacques de Silvabelle at Marseilles on July 17, has long been mentioned in our treatises on Astronomy as undoubtedly moving in a hyperbolic orbit. This inference was first drawn by Burckhardt, who considered that of all the comets calculated up to the time he wrote (*Mémoires présentés par Savans étrangers*, 1805) that of 1771 was the only one of which it could be stated with some degree of certainty that the orbit was hyperbolic. Encke considered the case worthy of further investigation; remarking that from the nature of the conditions it might be demonstrated that a comet could not rigorously describe a parabola, and that experience so far rather gave the preference to the ellipse over the hyperbola, he insisted that a comet, whose track could not be represented completely except by hyperbolic motion, merited the greatest attention. He accordingly reduced anew the six observations employed by Burckhardt, and after their careful discussion found that the most probable elements were hyperbolic with eccentricity = 1.00937, which is almost identical with Burckhardt's value (1.00944). Nevertheless he did not regard the decided superiority of the hyperbola in the representation of the six places as an indubitable proof of the necessity of admitting motion in that curve; the positions used were not normal positions, but the results of single and isolated observations, and as such, the errors exhibited by a parabolic

orbit had not so great a preponderance in his opinion as to enforce such necessity. He concluded that the subject still required examination by a combination of all the observations, and especially if the originals of those at Marseilles could be found. On this point Zach stated, in a note to Encke's communication (*Correspondance Astronomique*, t. v.), that during a recent visit to Marseilles he had searched in vain amongst the papers of St. Jacques de Silvabelle for these originals.

Lately, the orbit of the comet of 1771 has formed the subject of two memoirs, containing very rigorous discussions of the observations, the first by Mr. W. Beebe, in the *Transactions* of the Connecticut Academy of Arts and Sciences, vol. v.; the second by Dr. H. Kreutz, published in the *Proceedings* of the Vienna Academy. Mr. Beebe gives also a hyperbolic orbit, accompanied by the most probable parabola for comparison. The investigation by Dr. Kreutz, a very complete one, gives perhaps a more definite result. He is led to a parabolic orbit for the closest representation of the comet's path, and though the original observations at Marseilles had again been sought for unsuccessfully, he does not think their recovery would affect the conclusion at which he had arrived. The elements of the definitive parabola are as follow:—

Perihelion passage, 1771, April 19 14144 M.T. at Paris.

Longitude of perihelion	... 104° 1' 21.7"	} M. Eq. 1771.0
" " ascending node	27 53 11.7	
Inclination	... 11 15 53.1	
Logarithm of perihelion distance,	9.955127	
Motion—direct.		

THE CASSINI DIVISION OF SATURN'S RING.—At the January meeting of the Royal Astronomical Society, Prof. J. C. Adams made a very interesting communication on William Ball's observations of Saturn, upon which much confusion and misapprehension have existed. Attention has been directed to the subject lately by several astronomical contemporaries, mainly with the view to show that William Ball was not, as he has been considered, the discoverer of the chief division of Saturn's ring. Prof. Adams has carefully examined letters from Ball preserved in the *Archives* of the Royal Society, Huyghens's *Opera Varia*, &c., and remarks: "I find no evidence that Ball, any more than Huyghens, had noticed any indication of a division in the ring." This statement may be accepted as conclusive that the impression of several English writers as to Ball's claim to the discovery of a double ring is a mistaken one, and the credit of the discovery rests with Cassini. The announcement of it made by the French astronomer to the Academy of Sciences is in the following terms:—"Après la sortie de Saturne hors des rayons du soleil l'an 1675 dans le crépuscule du matin, le globe de cette planète parut avec une bande obscure semblable à celles de Jupiter, étendue selon la longueur de l'anneau d'orient en occident, comme elle se voit presque toujours par la lunette de 34 pieds, et la largeur de l'anneau étoit divisée par une ligne obscure en deux parties égales, dont l'intérieure et plus proche du globe étoit fort claire, et l'intérieure un peu obscure. Il y avoit entre les couleurs de ces deux parties, à-peu-près la même différence qui est entre l'argent mat et l'argent bruni (ce qui n'avoit jamais été observé auparavant), et ce qui s'est depuis vu toujours par la même lunette, mais plus clairement dans la crépuscule et à la clarte de la lune que dans une nuit plus obscure. Cette apparence donna une idée comme d'un anneau double, dont l'inférieur plus large et plus obscur fût chargé d'un plus étroit et plus clair." In two figures attached to this announcement the ring is shown with the outer half shaded and the inner half white, and there is a central band across the globe.

### ON THE CHEMICAL CORROSION OF CATHODES<sup>1</sup>

THIS paper contains a description of the influence of various circumstances upon the chemical corrosion of metallic cathodes in different liquids.

Several preliminary experiments are described by means of which it was found that in some cases the chemical corrosion of a metal is increased, and in others decreased, by making the metal a cathode. Also, that the loss of weight of a cathode in an electrolyte is dependent upon several conditions, such as difference of metal, of liquid, or of strength of liquid, some of

<sup>1</sup> By G. Gore, LL.D., F.R.S. Abstract of paper read before the Birmingham Philosophical Society, December 14, 1882.